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Development of statistics on business demography in the European Union	

1. Introduction

The European Union needs to have the necessary tools, such as statistics, to be able to monitor policy effectiveness. Statistics should be produced in a cost effective way without creating too much burden on the National Statistical Institutes and on enterprises, the object of study in this case. They should also be available in a timely fashion and be of good and reliable quality. Data should be harmonised and available on the European level so that international comparisons can be made e.g. between EU, USA and Japan. They should be available also on national level in order to allow benchmarking and comparisons within the European Union.

2. User needs at the European level

The user needs for data on business demography stem from policies aimed at developing conditions that facilitate the creation of new companies and enhance the possibilities for growth of the existing ones in order to create more and better jobs. The Council of Lisbon in 2000 set the strategic goal of transforming the European Union into “the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion”. The promotion of entrepreneurship is also one of the objectives of the European Union’s Multiannual Programme for Enterprise and entrepreneurship for 2001-2005.

3. Background

The Council Regulation No 58/97 on Structural Business Statistics requires the Member States to deliver to Eurostat data on enterprise births and enterprise deaths for the sectors of industry and construction. No requirements currently exist for the services sector where most of the newly born enterprises are in fact created. Many Member States are not in a position to deliver the requested data or the data that is available is not comparable. The results of a voluntary collection of existing data on business demography at the end of 1999 clearly demonstrated the need to address comparability issues. Table 1 below illustrates the size class distribution of enterprise births in 1997 for the seven countries that provided data for real enterprise births. The number of enterprises that are born with many employees leads to questions regarding the nature of the enterprise creation.

Table 1: Enterprise births in 1997 – absolute number and size class distribution in terms of number of employees

Size classes	1		2		3 ⁽¹⁾		4 ⁽²⁾		5		6 ⁽²⁾		7 ⁽¹⁾	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
0	14,057	87	138,351	81	8,368	76	1,409	63	5,897	58	68,720	39	6,723	93
1-4	1,661	10	29,131	17			616	27	3,302	33	91,040	52		
5-9	320	2	2,088	1	1,523	14	121	5	527	5	10,415	6	365	5
10-19	75	1	1,179	1	616	6			224	2			105	2
20-49	13	0	218	0	220	2	107	5	114	1	5,900	3	30	0
50-249	c	c	32	0	240	2	c	c	36	0	690	0	c	c
250+	0	0	c	c	6	0	:	:	c	c	70	0	0	0
Total	:		:		:		:		:		:		:	
(1) Data are given for the size class 0-4.							c: less than 4 enterprises							
(2) Data are given for the size class 10-49.							: confidential							

Given that business demographics are a sensitive area where the use of unharmonised data might lead to wrong

policy conclusions it was necessary to take a wide perspective and start a full-fledged development of these statistics with the National Statistical Institutes.

4. The project plan

4.1 The aim

The aim of the Eurostat project is to respond with harmonised data to the ever increasing demand for statistics on business demography both nationally and at a European level. Priorities have been set jointly with the users in the European Commission and with the National Statistical Institutes. A staggered approach will be taken both in terms of the variables to be produced as well as the way the project will proceed. During its first stage, the development project aims at collecting harmonised data on real enterprise births (numbers, employment in them, turnover generated by them), survival of newly born enterprises, growth of newly born enterprises and possibly enterprise deaths. The aim is to be able to produce data on real new enterprise births and real enterprise deaths eliminating the enterprise creations or closures that take place due to reorganisations, changes of legal forms and other such events. The project will start by a feasibility study on a limited number of sectors of activity to test the methodology, before a harmonised data collection will be carried out.

The approach is based on the application of standardised methods on data available in the Business Registers. After the completion of the first stage, when basic data on business demography should be available, the aim is to go beyond the use of Business Registers and develop statistics on the factors that contribute to enterprise survival, success or failure.

4.2 Current state of development

All National Statistical Institutes have been keen to participate in the development project and are willing to make extensive efforts to reach harmonisation of the statistics. In-depth methodological development took place during 2000 in form of smaller meetings with the Member States and a written consultation. These meetings were necessary in studying the current situation in each Member State and understanding the methodological constraints and possibilities that existed in achieving harmonised statistics at EU-level. The first meeting of the Working Group took place on 19-21 March 2001 with a view of agreeing on the priority setting, the methodology and the launching of the feasibility study and the following harmonised data collection. The subject attracted considerable interest with participation from all Member States (apart from Greece), Norway, Liechtenstein, Switzerland and all Central European Countries. The principle of the feasibility study and the subsequent harmonised data collection were approved in the meeting. The countries that have decided to participate in the feasibility study are Belgium, Denmark, Spain, France, Italy, Luxembourg, the Netherlands, Portugal, Finland, Sweden and United Kingdom.

4.3 Priority setting

The short term priority variables are enterprise births, employment and turnover in them, their survival and the growth of newly born enterprises. There is also great interest in statistics on enterprise deaths, but they are more problematic to produce. The information that an enterprise has died may not come from any administrative source, or it is very delayed. For example, the enterprise may have ceased all activity, but if it owes some taxes, the tax administration still considers it active and does not inform of the cessation of activities. Surveying does not produce good results either as enterprises have no incentive to reply to the Statistical Office once they have ceased activity. Therefore, it was decided that a first attempt on the production will be done in connection with the feasibility study in order to take advantage of the synergies and to draw from the experience for further methodological development.

4.4 Definition of enterprise births, the key variable

The European Commission Regulation No 2700/98 defines enterprise births as follows:

“A count of the number of births of enterprises registered to the population concerned in the business register corrected for errors. A birth amounts to the creation of a combination of production factors with the restriction

that no other enterprises are involved in the event. Births do not include entries into the population due to: mergers, break-ups, split-off or restructuring of a set of enterprises. It does not include entries into a sub-population resulting only from a change of activity."

This definition was accepted as is. Data on enterprise births should cover the creations of new enterprises that have started from scratch and that have actually started activity. An enterprise creation can be considered an enterprise birth if new production factors, new jobs in particular, are created.

The following cases should be included in the statistics on enterprise births:

1. Enterprise started by a person who previously performed the same activity, but as an employee
2. Enterprises created as a result of minor split-offs from existing enterprises where new jobs are created. The percentage of the transferred jobs out of the total employment should not exceed 50%.

Events leading to a creation of a new enterprise (or legal unit), but which should be excluded from the statistics on enterprise births are:

1. Enterprises that are created by merging production factors or by splitting them into two (or more) companies (break-ups, mergers, split-offs, restructuring)
2. Newly created enterprises that simply take over the activity of a previously created enterprise (take-over)
3. Any creations of additional legal units/enterprises solely for the purpose of e.g. the real estate or personnel management of an existing company.
4. An enterprise that is registered when an existing enterprise changes legal form. E.g. a successful sole proprietor that moves from operating the company from her/his home to another location and at the same time changes the legal form of the company to a limited liability company is a case that should be excluded.
5. Reactivated enterprises if they restart activity within 2 calendar years.

Newly born national or foreign subsidiaries should be included in the enterprise births under the conditions that: 1) they are real enterprises (not local units or branches only) that have autonomy of decision making, 2) new production factors are created and that 3) the involvement of other enterprises is limited to financing.

Newly born foreign owned subsidiaries, that are independent enterprises, have very different characteristics as other newly born enterprises. Other enterprises are involved in their creation and they can draw from the expertise and know-how of the mother company. They often start with a greater number of personnel as the other newly born enterprises. As they are considered to contribute to the national economy and as there is currently limited information available to identify them separately in the Business Registers, they will be included in the real enterprise births and the possibility of producing a separate data set on them will be investigated as a medium term priority.

4.5 The method for the production of the data for enterprise births

4.5.1 Criteria of method – limited burden, use of existing information and automated processes

The key criteria for the method of production for the feasibility study are that a tool that is available to all Member States should be used and excessive burden on the National Statistical Institutes should be avoided. In addition, one of the aims of the European Commission is to lessen the overall administrative burden on small enterprises, hence, the method should not burden enterprises. Given these framework conditions, the production method is based on the analysis of existing Business Register data.

In order to reduce burden on National Statistical Institutes existing information and automated processes will be used as much as possible to produce the necessary data. Stocks of active enterprises should be extracted from the Business Registers for reference year t , $t-1$ and $t-2$. These stocks will then be compared in order to identify the target populations of newly registered units, that can be further checked to establish whether they are real enterprise births. Comparisons two years back are necessary to eliminate reactivations from the population of new enterprises. Comparisons of the stock of active enterprises are used instead of the dates of creation or deletion to determine birth or death as these dates are not available to all Member States and are not always reliable. All enterprises with any activity during the reference year will be included in the stock, even if the activity was for a limited period. This way enterprises with seasonal activities will also be included.

4.5.2 Limitation to active enterprises

One of the main challenges in using the Business Register will be to succeed in identifying the active enterprises and weeding out the inactive ones. Activity is defined as any employment or turnover in the target unit. If the necessary information for verifying employment or turnover is missing, then a national method aiming at this verification will be used.

4.5.3 Automated matching

It is not always possible to identify the nature of the demographic event of the real world by the information that is readily available in the Business Register. Hence a method for identifying the real births utilising the currently available data had to be developed. Automated matching of records will be run in order to identify and eliminate newly created enterprises that are in fact results of a take-over, a merger or a change in the legal form or other restructurations. In some countries similar type of matching is done before a unit is introduced into the Business Register as a new enterprise. The matching procedure consists of matching of records using firstly the sector of activity and location, secondly the name and the location, thirdly the sector and the name and lastly links between units as the matching criteria. The matching should be carried out using the 4-digit level of NACE Rev.1 and the most detailed level of address information.

The challenges in using automated matching of units relate to: missed matches, over-matching, units with multiple locations, multiple matches and non-standardised coding of names and addresses. If multiple matches are found when sector of activity and location are matched, some manual checks should be carried out.

Once the matching process is completed, the units for which a match has been found will be deleted from the population of new enterprises. Additional nationally available information e.g. telephone number checks, Official Journal information etc. can be used to delete further units. The result of each of the matching steps will result in a population of matched units, called subpopulations. These will be kept for further study to make judgements on the usefulness of each check nationally and across the countries.

4.5.4 Manual controls

Once the units that are not real enterprise births are subtracted, some manual controls have to be performed on the remaining population. Manually controlled will be units with more than twenty employees or units with no employees, but exceptionally high turnover (implausible real enterprise births).

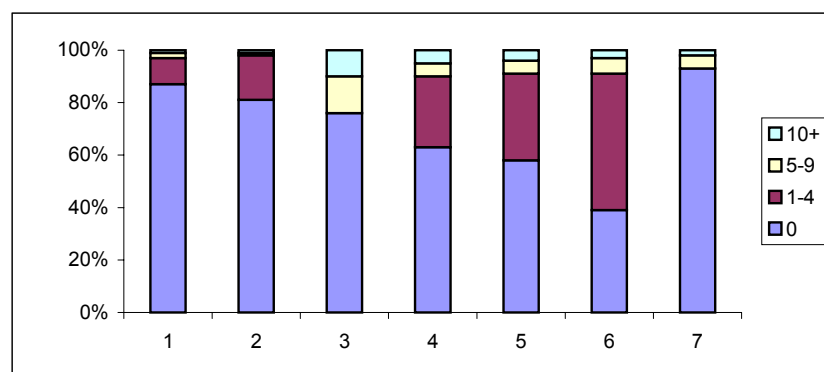
Table 2: Summary of the identification process of real enterprise births

Population	Information used	Number of enterprises
All active enterprises in year t	Turnover / employment	N_t
All active enterprises in year t-1	Turnover / employment	N_{t-1}
All active enterprises in year t-2	Turnover / employment	N_{t-2}
New enterprises in year t	ID number comparison of $N(t)$ with $N(t-1)$ and $N(t-2)$	X_t
Subpopulation from matching	Location and Sector	X_1
Subpopulation from matching	Location and Name	X_2
Subpopulation from matching	Sector and Name	X_3
Subpopulation from matching	Links between legal units	X_4
Subpopulation from matching	other nationally available information (Official Journal, telephone number etc.)	X_5, X_6 etc
	Manual control of large units	X_z
Real enterprise births (R)		$R = X_t - U(X_2 \dots X_z)$

4.5.5 Coverage questions

The question of coverage of the source used is one of our challenges. Different sources are available and used in updating the Business Register, the main administrative sources being the Value Added Tax (VAT) files and social security files. In many countries small enterprises are not surveyed, so the only sources of information are the administrative files. The coverage of self-employed persons that operate in a VAT exempt activity poses most problems. The data from the previous voluntary collection (figure 1) show that the great majority of enterprises are born small, many with no employees. In addition, the administrative sources, especially the VAT source, have varying thresholds across the countries. In the interest of reducing administrative burden, many national authorities also keep increasing the threshold above which one must register for VAT payments.

Figure 1. Enterprise births in 1997 – Distribution by size classes in terms of number of employees



How have we dealt with this problem? No threshold of activity level is set for the feasibility study in order to include all the potential newly born enterprises. Very detailed breakdowns by turnover, employment and legal form are required in order to be able to analyse the quality and the comparability of the data and to make judgements for the harmonised data collection.

4.5.6 The timelines of the data

As information on the employment or turnover of a given enterprise is received from administrative sources with a certain delay, some only annually, this will result in delays in the delivery of the statistics as well. It is foreseen that the statistics will be available 18 months after the end of the reference period.

4.5.7 Statistical unit

The enterprise unit is not yet recorded in all Business Registers. It was concluded in the Working Group meeting that after the checking of the data (links and matching), even if the starting unit is the legal unit, the end result will be enterprise data. Hence, in most countries when the method refers to enterprises, in reality the treatment is done to legal units.

4.6 Statistics on survival of newly born enterprises

The feasibility study will also test the methodology for producing statistics on the survival of newly born enterprises.

The survival of an enterprise is defined in the study in the following way:

- An enterprise born at time t is considered survived at time $t+1$, if the enterprise is active in terms of turnover and/or employment at time $t+1$, at least part of the period from 01.01 to 31.12 of year $t+1$ (= survival

without changes).

- If the enterprise is not active in terms of turnover and/or employment at time $t+1$ it has survived if its activity is taken over by a new enterprise that has taken up activity in year $t+1$ (= survival by take-over).

The same information that will be used for evaluating whether a newly created enterprise is a real enterprise birth will be used for determining survival. In fact, when producing data on enterprise births of $t+1$, the units that have been eliminated from the potential enterprise births with the matching procedure are used to identify take-overs by new enterprises.

In order to verify the accuracy of the results, some manual checks are carried out. The manual controls should be designed to capture large changes (decline or growth) in the turnover or employment data and should include enterprises that survive and that cease to exist.

Split-offs and break-ups of enterprises between time t and time $t+1$ are complicated as regards survival. In both cases the production factors are continued, but the enterprise as it originally existed has not. Split-offs and break-ups are probably rare in newly born enterprises in the first few years after establishment and their impact on the statistics on survival of newly born enterprises is therefore limited. Further, it is probably difficult to detect a split-off in practice, as the newly born enterprise of time t still exists and is active at time $t+1$. As a pragmatic approach, in case of split-off, the original enterprise is then considered as survived, and the part that has split-off will not be followed. For break-ups, the enterprise that continues the original activity is followed, or if both continue the same activity, the bigger of the two is followed.

The aim and the challenge is to follow cohorts of newly born enterprises for the first five years after establishment and to produce annual survival rates during those years.

4.7 Statistics on growth of newly born enterprises

Newly born enterprises are in general relatively small in the year of establishment. To fully evaluate their impact on the economy it is necessary to follow the newly born enterprises during a longer period of time. Statistics on growth will be based on the number of persons employed. It was felt that the turnover figures for the first year of operation are at the moment not a sufficient basis for measuring growth. The statistics will be based on internal growth only, excluding e.g. growth by mergers.

A number of indicators will be produced from the feasibility study:

- The proportion of growing/stable/declining enterprises (in comparison to their initial size) out of the number of newly born enterprises in the initial reference year
- The rate of growth of the number of persons employed in newly born enterprises
- Net creation of jobs in newly born enterprises as a proportion out of the number of persons employed in the stock of enterprises
- The proportion of jobs created/kept/lost in the growing/stable/declining enterprises out of the initial employment in the newly born enterprises
- The average number of jobs per enterprise in newly born enterprises during the first and second year of operation

In order to compare the statistics on growth of newly born enterprises with the general growth of the stock of existing enterprises, basic data on the number of active enterprises and the number of persons employed for each reference year will be provided by the participants of the study.

4.8 Production of statistics on enterprise deaths

Many Member States as well as the European Commission's users emphasise the importance of statistics on enterprise deaths. At the same time, there seems to be a general agreement that it is more difficult to produce reliable data on enterprise deaths than on enterprise births. The feasibility study provides an opportunity to test the production of statistics on enterprise deaths. The method of comparing populations of active enterprises used for the production of data for enterprise births will be applied for enterprise deaths as well, in order to gain from synergies in the process. It is acknowledged that the methodology for the production of statistics on enterprise deaths is not yet fully developed and the results of the feasibility study will provide valuable input towards this further development.

4.8.1 The definition of enterprise deaths

The Commission Regulation No 2700/98 defines enterprise deaths as follows:

“A count of the number of deaths of enterprises registered to the population concerned in the business register corrected for errors. A death amounts to the dissolution of a combination of production factors with the restriction that no other enterprises are involved in the event. Deaths do not include exits from the population due to mergers, take-overs, break-ups and restructuring of a set of enterprises. It does not include exits from a sub-population resulting only from a change of activity.”

For the time being, this definition is accepted as the basis for the feasibility study. Events leading to a closure of an enterprise, but which should be excluded from the statistics on enterprise deaths are:

1. Enterprises that are closed down due to merging or breaking-up of production factors (break-ups, mergers, restructuring)
2. Enterprise whose activity is taken over by another enterprise (take-over)
3. An enterprise that is deleted when an existing enterprise changes legal form. E.g. a successful sole proprietor that moves from operating the company from his home to another location and at the same time changes the legal form of the company to a limited liability company is a case that should be excluded.
4. Reactivated enterprises if they restart activity within 2 calendar years.

For many enterprises there is no direct way to determine death and information on the date of cessation may not be forthcoming from an administrative source. Hence, the decision that an enterprise has ceased to exist or has become permanently inactive will have to be made by combining information from different sources.

4.8.2 The matching procedure

As mentioned before, the information that an enterprise has ceased activity may come with a very long delay from the administrative sources. Consequently, the dates of cessation are not a good basis for producing reliable data on enterprise deaths across the European Union. Thus, the same matching process is carried out as for the enterprise births. This time the stocks of active enterprises t , $t+1$ and $t+2$ are compared to establish the population of potential enterprise deaths. After the completion of the matching procedure, the units for which a match is found will again be eliminated and the remaining population is considered as enterprise deaths. Once more detailed breakdowns will be produced to allow for in-depth analysis of the data.

4.9 The role of the feasibility study

The feasibility study is more than a testing of the method and the definitions. It is a fact finding exercise to make educated decisions for the harmonised data collection. Data on the final results of each variable (e.g. enterprise births) are expected as well as information on the units that were weeded out of the target population due to the different matches carried out.

Detailed breakdowns of the data from the feasibility study are needed and will be used to e.g. determine the level of harmonisation of the data and whether thresholds are necessary for the harmonised data collection. The study will be done on NACE Rev.1 divisions 15 - manufacture of food products and beverages, 28 - manufacture of fabricated metal products, 45 - construction, 52 - retail trade, 72 - computer and related activities and 74 - other business activities.

Comparison with existing results will be done by most of those Member States that have existing statistics on business demography in order to gain further insight into the validity of the results obtained.

It will be a challenge to get comparable results, especially for the subpopulations, as current updating practices of Business Registers in the Member States lead to differences in the results.

5. The way forward

The results of the feasibility study are expected to arrive in Eurostat by the end of 2001.

After an evaluation of the results of the feasibility study, the final method for the harmonised data collection will be defined and discussed during the next meeting of the Working Group in spring 2002. It is hoped that the

harmonised data collection can be launched immediately after the meeting of the working group and that results can be obtained by early autumn 2002. This timetable is based on the assumption that most work on the part of the Member States will have been invested during the feasibility study, which will have resulted in an instrument to be applied also to the other sections of NACE Rev.1.

In parallel to the above, further methodological work will be carried out, in particular on enterprise deaths. Work on the production of the statistics on the factors that affect enterprise success and survival will be started in 2003. Based on national experiences so far these factors are for example enterprise characteristics such as level of initial investment and characteristics of the entrepreneur such as branch experience.

6. Timing

The timetable that is currently foreseen for the first priority variables is:

Feasibility testing in Member States	June 2001 – December 2001
Data and methodological report to be delivered to Eurostat	31 December 2001
Analysis of results of the feasibility study by Eurostat (assisted by ONS)	November 2001- March 2002
Working Group to discuss results of feasibility study and decide on details regarding the harmonised data collection	April 2002
First Harmonised data collection	April – August 2002
Data and methodological report transmitted to Eurostat	31 August 2002
Final results available	December 2002

7. Expected outcomes of the development project

The aim of the development project is to obtain harmonised data on business demography. If the methodology is adopted for the future collections of business demography data in the Member States, breaks in the current time series can be expected for those countries that are already producing and publishing this data. As the harmonisation effort is being done simultaneously by all the Member States, the political effects of these breaks will be reduced, and the possibilities for international comparison for national authorities increased.

In addition to the statistical results that we hope to achieve, we also might be able to provide some input towards discussions on further harmonisation and development of the Business Registers and to the existing Manual of Recommendations.

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